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ABSTRACT

Threat and coping ability were inversely related for 20 high and low anxiety subjects. Lows formulated longer free responses, but fewer were realistic. Ego-threatening situations increased attention and cue utilization for both groups. Highs had more stereotyped self-images, but sought less "reassurance" from their immediate family than lows. (Author)

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Stress in Visualized Threatening Situations

Janis and Leventhal (1968) hypothesize that intensity of "fear" is related to adequacy of performance by an inverted U-shape function. They propose that at very low levels of stress, the predominant behavior will be verbal denial of the threat, optimism about being unaffected, no exposure to information, no planning or preparatory actions; at moderate levels of stress there will be selective self-exposure to information, discriminative vigilance, development of danger-contingent reassurances; at high stress levels there will be unselective self-exposure to information, indiscriminate vigilance, anticipated vulnerability, poor judgment, and extreme forms of defensive avoidance. The purpose of this study was to test hypotheses derived from the inverted-U theory of Janis and Leventhal (1968) but modified in accordance with several current lines of research that bear directly on their general formulation.

Spielberger (1966) proposed a useful distinction between state anxiety (A-state) and trait anxiety (A-trait). State anxiety is characterized by subjective feelings of apprehension and heightened autonomic nervous system arousal, whereas trait anxiety refers to individual differences in anxiety proneness, or the disposition to respond with A-state in stressful situations. Hodges (1968), following this distinction, made differential predictions of the effects of threat to self-esteem (greater increase in self-report measures of A-state for subjects high in A-trait than for subjects low in A-trait) and threat of physical pain (no difference in self-report measures of A-state for subjects who differed in A-trait) and found support for both hypotheses. In the present study Hodges' hypotheses were tested using self-report measures of A-state in response to visualized threatening situations.

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Easterbrook (1959) and Bruning et al. (1968) have utilized the concept of "range of cue utilization" to account for the effects of threat, or heightened emotion, on behavior. Range of cue utilization is the total number of environmental cues in any situation that an organism observes, maintains an orientation towards, responds to, or associates with a response. In Easterbrook's formulation, perception of threat raises drive level and reduces the range of cue utilization. In particular, perception of threats to the self reduces the perceptive field to the area of the perceived threat. Hence it might be anticipated that the range of cue utilization would be greater for low A-trait persons than for high A-trait persons, and also that there would be a greater reduction in range of cue utilization as a consequence of ego-threats than of non-ego threats. It should follow, then, that low A-trait subjects would utilize more cues from a visualized threatening situation and hence be able to verbalize more comprehensive free responses to the question, "What would you do in this situation?". Further, differences between subjects high and low in trait anxiety should be accentuated in ego-threating situations.

Easterbrook (1959) contends that memory span for digits is a measure of range of cue utilization, and Hodges and Spielberger (1969) also discuss digit span within the state anxiety vs. trait anxiety context. Hence this measure was included in the present study also with the prediction that high A-trait subjects would evidence a reduced memory span for digits, in comparison with low A-trait subjects.

An additional derivation from the range of cue utilization concept concerns the self images of persons differing in A-trait. If high A-trait individuals have reduced cue utilization, they should also evidence more stereotyped self images (more positive and less variable) than individuals

low in A-trait. An adjective check list was employed to test this hypothesis in the present study.

Lazarus (1966) has contended that in addition to the perception of the threat itself, the subject's perception of the adequacy of his coping processes is important in determining his response to a threatening situation. Geer and Davison (1970) have reported that the perception of effective control, even if not veridical, reduces stress. Thus, it should follow that there will be a general inverse relationship between perceived coping ability and degree of A-state reported, and also that subjects with high train anxiety will perceive themselves less able to cope with threatening situations than subjects with low trait anxiety. Further, these differences should be accentuated when the threat is to the subject's self esteem.

Based directly on the formulation of Janis and Leventhal (1968), it was predicted that high A-trait subjects would engage in a greater amount of defensive maneuvering than low A-trait subjects and hence would make fewer realistic or moderate responses to the threatening situations on the free response and forced choice measures. It was further anticipated that these differences would be greater in ego-threatening situations than in non-ego threatening situations. Finally, it was expected that high A-trait subjects would seek more reassurance by visiting home more frequently and by receiving a greater number of visits from members of their immediate family than low A-trait subjects.

Utilization of visualized threatening situations in this study was based on the evidence cited by Grossberg and Wilson (1968) in support of Wolpe's contention that imagining fearful situations is a specifiable operation which has measurable effects on subjects: it acutally evokes physiological arousal. Edelman (1971), following the procedures utilized by Grossberg

and Wilson, found further support for this conclusion.

While both of the preceding studies used physiological measures of arousal, Janis (1958), in reporting the results of his extensive studies on stress, concluded that the questionnaire was adequate for investigating conscious feelings elicited by threatening circumstances. Krause (1961) surveyed six types of evidence, including physiological signs, and concluded that self report provides the most widely accepted indicator of transitory anxiety. Lazarus and Opton (1966) and Hodges (1968) also concluded that self report measures were more sensitive indicators of variations in arousal, or A-state, that physiological measures. Thus this investigation employed self report measures of response to visualized threatening situations.

Method

Subjects

The measure of trait anxiety used for selecting subjects in this study was an 18-item anxiety symptoms inventory modeled after Janis and Feshback (1954) and Indik et al. (1964). Each item was rated on a five-point scale, with 1 indicating low anxiety and 5 high anxiety. Criteria for inclusion in the "low A-trait" group were a total score of 29 or less and 15 or more low responses (1 or 2). "High A-trait" group criteria were a total score of 32 or over and fewer than 15 low responses. From subjects who met the criteria, ten were selected at random for each group. There were no significant differences between the high and low groups with respect to sex, race, age, or number of years of parents' education. All subjects were college freshmen.

General Procedure

(a) Scene construction

Twenty threatening scenes were selected from thirty scenes used in

pilot work: five were unanimously rated as "ego-threatening" by the pilot subjects (n=38); five were unanimously rated "non-ego threatening" (these involved physical threats, cf Hodges, 1968); ten were "other" threatening situations (a clerk gives you change for $5 and you think you gave her $10). Order of presentation of scenes was random.

(b) Fixed alternative responses

The threatening scenes were re-read with three fixed alternative responses to the question, "What would you do in this situation?". Pilot subjects' free responses to this question had been rated low, moderate, or high threat responses according to the definitions of Janis and Leventhal (1968) by two independent raters. The fixed alternatives were selected at random from the free responses agreed upon by both raters. For each scene one alternative was a high threat response, one moderate, and one low. Order of presentation of both scenes and alternatives was random. Each subject was asked which response sounded most, and which least, like what he would do in the given situation.

(c) Experimental procedure

Each subject was run individually. Instructions were those used by Grossberg and Wilson (1968, p. 127). After imagining each scene the subject was asked how upsetting it was (four-point scale). This was the self report measure of A-state. He was then asked what he would do in this situation (free response), and how well he thought he would cope with this situation (four-point scale). Subjects were then given a 90-item adjective check list modeled after Nowlis and Nowlis (1956), the memory span for digits test from the WAIS, and a questionnaire to obtain relevant supplementary data (e.g., number of visits home). Finally, the threatening scenes were re-read with the fixed alternatives.

All sessions were taped. Subjects' free responses were rated by two independent raters as defensive or realistic according to the definitions proposed by Janis and Leventhal (1968). Only responses on which both raters agreed were used in the analyses. (There was agreement on more than 97% of the responses rated.)

Results

Since trait anxiety is conceptualized by Spielberger (1966) as a general disposition to respond with state anxiety in stressful situations, it was hypothesized that visualizing threatening situations would induce a greater degree of state anxiety in high A-trait than low A-trait subjects. Further, following from the work of Hodges (1968) it was predicted that the increase in A-state produced by ego threat would be greater for high A-trait subjects than for low A-trait subjects, but that the increase in A-state produced by non-ego threatening situations would not differ for subjects who differed in A-trait. None of these predictions was supported in this study. Nor was there any support for the hypothesized differential perception of coping ability between high A-trait and low A-trait subjects, nor for the expected accentuation of these differences when the threat was to the subject's self esteem. All differences between groups in ratings of A-state and ability to cope were non significant over all situations, for the ego-threating situations, and for the non-ego-threat situations. However, the predicted inverse relationship between reported A-state and perceived coping ability was significant ($r= -0.73$, $p < .01$).

The hypotheses derived from the range of cue utilization concept were all supported by the measure of total words in the free response condition, but not by the memory span for digits measure. The low A-trait group utilized a significantly greater number of words in the free response condition than the high A-trait group ($U=23$, $p < .025$). This difference was

comparable to the differences evidenced in the non-ego-threatening situations ($U = 22$, $p < .025$) but the differences were accentuated in the ego-threatening situations ($U = 18$, $p < .01$). No differences in digit memory span were significant.

To minimize the effects of "responding to social expectations" on the adjective check list, the measure used was the number of words checked "do not apply" and "definitely do not apply." For 40 positive words, low A-trait subjects were significantly more variable than high A-trait subjects ($F=8.50$, $p < .005$), but the difference between low A-trait and high A-trait subjects in mean number of positive words checked was not significant. For the 40 negative words, however, low A-trait subjects checked significantly more as non-applicable ($t=1.93$, $p < .05$). Thus the predictions based on the range of cue utilization concept were supported.

It was expected that high A-trait subjects would show fewer realistic free responses than low A-trait subjects. However, contrary to predictions, high A-trait subjects made significantly more realistic responses than low A-trait subjects ($U=26$, $p < .05$). In ego-threatening situations, high A-trait subjects also made significantly more realistic responses than low A-trait subjects ($K_D = 6$, $p < .05$). The difference in non-ego threatening situations was not significant.

In the forced choice condition, the least likely alternative was used as the dependent variable to minimize "responding to social expectations." Differences for total number of responses were significant and in the predicted direction: high A-trait subjects made significantly more "least likely low" responses ($t=2.01$, $p < .05$) and high A-trait subjects made significantly fewer "least likely high" responses ($t= 1.78$, $p < .05$). However, differences in the ego-threatening situations and in the non-ego-threatening situations were not significant. Hence, data from this study

neither clearly support nor refute the hypotheses derived from the formulation of Janis and Leventhal (1968) with respect to defensive behavior.

The data on reassurance seeking were much less ambiguous. The total number of trips home and the number of visits made by the members of the immediate family during the preceding two months was significantly greater for low A-trait subjects ($U=21$, $p<.025$). Low A-trait subjects went home a significantly greater number of times ($U=17$, $p<.01$), but differences in number of visits by members of the immediate family were not significant. These results are exactly opposite to predictions.

Within-group comparisons were made to determine whether there was a differential response to ego- vs. non-ego-threatening situations among high A-trait subjects and among low A-trait subjects. In the free response condition, both high A-trait subjects and low A-trait subjects gave significantly more words in response to ego- than to non-ego-threatening situations ($T=9$ for lows, $T=8$ for highs, $p<.05$ for both). This suggests greater cue utilization in ego-threat situations within each group. In the forced choice condition, both groups gave significantly fewer "least likely low" responses in ego-threatening situations ($T=1$ for lows, $T=3.5$ for highs, $p<.01$ for both), and significantly more "least likely moderate" responses ($T=0$ for both, $p<.01$ for both). Thus ego involvement in a threatening situation seems to increase attention and cue utilization within, as well as between high A-trait and low A-trait subjects.

Discussion

It is perhaps not surprising that the hypotheses derived from the concepts proposed by Spielberger (1966) and Hodges (1968), operationalized for testing in this study by procedures derived from the work of Janis (1954, 1958, 1968), received no direct support. However, the differential effects of ego- and non-ego-threatening situations on other measures used in this study, particularly the evidence from the within group analyses, certainly underscores Hodges' contention that, "in investigation of the effects of stress on state anxiety for subjects who differ in trait anxiety the type of stress must be taken into account" (1968, p. 370).

The position taken by Lazarus (1966) that the subject's appraisal of a threatening situation is not independent of his perception of his coping processes also received some support in this study from the observed significant inverse relationship between reported A-state and perceived coping ability.

Clearly the most definitive results in this study supported the rather diverse hypotheses derived from the range of cue utilization concept advocated by Easterbrook (1959). Only digit memory span , the measure Easterbrook (1959) recommends to determine range of cue utilization, failed to support these hypotheses.

The evidence provided by this study for an assessment of the utility of the Janis and Leventhal (1968) inverted -U formulation is certainly not unambiguous. Considering the results in descending order of clarity, the data from the forced choice measure do seem to suggest that it is feasible to categorize responses to visualized threatening siutations as high, moderate, or low threat responses according to the criteria specified by Janis and Leventhal (1968), and that there is differential selection of these responses by high and low A-trait subjects.

The reassurance seeking data seem to suggest a new set of predictions. The hypotheses formulated for testing in this study were based on the premise that high trait anxiety would cause a subject to seek more reassurance. The data suggest the reverse may be more tenable: high reassurance causes a subject to evidence lower trait anxiety.

The free response data are particularly intriguing, especially if reconstrued in terms of the distinction made by Houston (1971) between "defensiveness" used to refer to the tendency of a person to report less anxiety than he feels (verbal denial of anxiety) and to attempts to actually reduce the affective and physiological concomitants and behavioral effects of anxiety (anxiety reducing maneuvers). Clearly the formulation of Janis and Leventhal (1968) utilized in this study for rating the free responses as defensive or realistic belongs to the latter conceptualization.

It will be recalled that Spielberger (1966) defined trait anxiety as the disposition to respond with A-state, or feelings of apprehension and heightened autonomic nervous system arousal, in stressful situations. Thus, subjects who report more defensive responses, as defined in this study, are in fact indicating a greater disposition to respond with A-state in stressful situations. It follows, then, that number of defensive responses can be construed as another measure of A-trait.

While other results of this study did support the contention that high A-trait subjects exhibit a more restricted range of cue utilization than low A-trait subjects, this prediction was not supported by the digit memory span data. Here, then, is the possibility of another, albeit post hoc, test of the same hypothesis. The subjects in this study were dichotomized into High A-trait and low A-trait groups with respect to the total number of defensive responses in the free response condition. Using the memory span for digits measure of range of cue utilization suggested by

Easterbrook (1959), and also utilized by Hodges (1968) and Houston (1971), a significant difference was found in the mean number of digits backward between the two groups ($t=2.39$, $p<.025$). The mean number of digits backward for the group reporting a high total number of defensive responses (high A-trait) was 4.3; for the group reporting a low total number of defensive responses (low A-trait), the mean was 5.6. Thus, with this operationalization of trait anxiety, support is found for restriction in range of cue utilization measured by memory span for digits for high A-trait subjects.

If, now, the contentions of Easterbrook (1959) are pursued one step further, it is possible to derive a prediction of an increased number of realistic responses in high A-trait subjects who also evidence a restriction in range of cue utilization. Easterbrook (1959) pointed out that restriction in range of cue utilization can facilitate an adaptive response, if the actual range of cue utilization has not fallen below that actually required for the task, by sharpening or concentrating action upon central cues, thus expediting reaction to them. Hence it is possible to develop, within the concepts proposed by Easterbrook (1959), a set of hypotheses which would have been supported by the data in this study which were ambiguous when interpreted with respect to hypotheses derived from the position of Janis and Leventhal (1968).

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